

REMARKS/ARGUMENTS

Reconsideration of the above application in view of the below remarks is requested.

In the Office Action, the Patent Office rejected claims 1 to 18 under 35 U.S.C. § 103(c) as allegedly be unpatentable over Bohm et al (US 4027046) in view of Tanaka et al (US 5622743) and rejected claims 19 to 26 under 35 U.S.C. § 103(c) as allegedly being unpatentable over Bohm et al (US 4027046) in view of the combination of Tanaka et al (US 5622743) and Brewing Science and Practice (pages 556-559). These rejections are traversed.

Bohm discloses a fining method in which an aluminate-modified silica sol is mixed with a beverage for protein removal and flocculation. The Patent Office admits that Bohm does not specify the pH of the silica sol used but mentions that Bohm teaches that both acidic and alkaline silica sol were available at the time. Bohm's own comparative test indicate that non-coated silica does not work as compared to its aluminate coated silica (see column 4, line 43 to column 6, line 5).

Bohm mentions that aluminate coated silica were already known, identifying US 2892797 as providing one method for producing such a sol. See column 2, lines 37 to 40.

Looking at the information from US 2892797, it is noted that (column 2, lines 24 to 33):

Sols to be treated can be slightly alkaline, with pH in the range 7 to 11, preferably 7 to 9. This corresponds to an $\text{SiO}_2:\text{Na}_2\text{O}$ weight ratio of about 300:1 for a sol in which the patricides have a surface area of about 200 square meters per gram. Sols having lower surface area require proportionally less alkali. On the other hand, deionized sols, having a pH in the range 3 to 5, can be treated. Since silica sols gel most readily in the pH range of 5 to 7, this is not a preferred pH range, but can be used.

US 2892797, column 4, lines 58 to 75, demonstrates that

The products of the invention are silica sols the particles of which are coated with less than a molecular layer of a combined metal as described. The sols will vary depending upon the characteristics of the starting sol, but they will be stable at both lower and higher pH than the sols from which they were made. Sols having 25 percent coverage of the metal were obtained which were stable down to a pH of 3.7, although there was some aggregation of the particles at this pH giving the sol somewhat turbid appearance. At a 50 percent coverage, stable sols were obtained by deionization from pH 12 to pH 8 through there was a slight precipitation at a pH lower than 10. This product gelled at pH 4.

Any ionic impurities in the finished sols can be removed as by the use of cation exchangers and anion exchangers.

The product pH, as has been noted above, can range from about 5 to 12. But especially interesting sols are which are stabilized in the range from 5 to 7.

It is noted that, for example, in Example 4 of US 2892797, although the pH of the starting silica sol was 3.1, after treatment it had a pH of 10.9.

Thus, the skilled artisan is taught by the document mentioned in Bohm that silica sols that are treated, like those of Bohm, gel at pH 4. The skilled artisan is also taught that useable pH range for the coated product ranges from pH 5 to 12.

The Patent Office states that Tanaka teaches the treatment of beer with aqueous silica suspension having a pH range of 3.5 to 5, pointing to the Abstract of Tanaka. The

Abstract of Tanaka does not disclose any pH range. All that the Abstract of Tanaka states is that "A stabilizing agent for beer comprising a particular amorphous silica exhibiting a large negative zeta-potential in the pH region of the beer." The pH range of 3.5 to 5 is mentioned at column 4, lines 16 to 22 as being the pH of beer.

In Abstract of Tanaka, it is stated that the amorphous silica is of the xerogel type and that the aqueous suspension thereof exhibits a pH of from 4 to 6.2.

Xerogel is silica gel from which the liquid medium has been removed, causing the structure to collapse, thus decreasing porosity. See Kirk-Othmer Encyclopedia of Chemical Technology, 3rd ed., vol. 20, pp 766 to 781 (1979), p 774 (see paragraph "**Properties**"). It is noted that in Kirk-Othmer, silica sols and colloidal silica (pp 771-773) are classified differently from silica gels (pp 773-775).

It is also noted that in Tanaka, for all the examples as shown in Tables 1 and 2 (see columns 9 and 10), the pH of all the samples were greater than 4.

In addition, applicants have shown in their specification that anionic colloidal silica sol has much better properties than xerogel when tested in beer. See page 5, line 17 to page 6, line 7. Therein, it is noted that the beer treated with the inventive colloidal silica had acceptable cloud after 15 days, the beer treated with xerogel exceeded the acceptable cloud after 12 days.

Thus, a skilled artisan would not have any motivation to combine Bohm with Tanaka given the differences of silica used as well as the pHs at which they were used, the combination of which does not result in applicants' invention. For Bohm, its silica

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gels at pH 4 and states that the useable pH range is from 5 to 12, greater than that of applicants' range.

Thus, the rejection of claims 1 to 18 over Bohm in view of Tanaka is traversed and withdrawal thereof is requested.

Also in the Office Action, the Patent Office rejected claims 19 to 26 as allegedly being unpatentable over Bohm in view of the combination of Tanaka and Brewing Science and Practice.

Bohm and Tanaka are discussed above and applicants have shown that the skilled artisan would have no motivation to combine those documents because of the differences in the materials and pHs used.

From the information provided by the Patent Office in the Office Action, the copyright/publication date of Brewing Science and Practice is 2004.

Applicants filed their priority document in Germany on June 28, 2002. A copy of a certified copy of the German priority document as filed with the South African Patent Office is enclosed and should be sufficient to demonstrate that applicants" filed their application prior to the publication date of Brewing Science and Practice.

As such, Brewing Science and Practice is not a legitimate document to reject claims 19 to 26. The rejection is traversed and withdrawal thereof is requested.

Finally, in the Office Action, the Patent Office stated that the references listed on the Search Report were not considered. Applicants note that the documents listed in

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the Search Report are set out on applicants' Form 1449. See applicants' Corrected Information Disclosure Statement of January 30, 2007.

Applicants also enclose a one (1) month extension of time.

Applicants submit that the concerns of the Patent Office have been addressed. Withdrawal of the rejections and issuance of a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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